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J. Robert Oppenheimer

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COMMENTS ON THE MILITARY VALUE OF THE ATOM

J. ROBERT OPPENHEIMER

Dr. Oppenheimer was the wartime director of the Los Alamos Laboratory. He is now director of the Institute for Advanced Study at Princeton University.



WHAT contribution may one reasonably hope that the atom can make to our military power, the power for the prevention of war, the limitation of war, and for the defeat of the enemy in the event that war does come? It is clear that not all the aspects of this problem are public or can be public. What is important is that there are some aspects that are public.

In the past the debate about the military value of the atom has had a singularly empty quality. To the first impression that the atomic weapon was so great a thing that it was a decisive, an absolute military power, there was a reaction: it is another weapon, it is "just another weapon," or, as in Mr. Hoover's phrase, it is "a less dominant weapon" than we had thought. People close to the work have at times also thought that the atom was a bit of a gold brick. But, in fact, one cannot talk in these terms. This is the argument of the optimist who thinks that this is the best of all possible worlds, and of the pessimist, who knows it. This is not an argument that has meaning.

For our purposes, at this time, there is a very definite thing we need to say: the difficulty and the magnitude of the military and the political problems which we now face and will continue to face, and the extent of our investment in the atomic field, mean that we cannot afford to misuse, and we cannot afford to ignore, what the atom can do for military purposes. This is a luxury in which we should not indulge.

In what I shall say, I am limiting myself, and I think rightly limiting myself, to one use only of atomic energy, one class of uses, the atomic bomb. There have been many references in the papers to other projects: to poisons, to other kinds of explosives, to propul-

sion systems for military craft of one kind and another. That is enough to indicate that some technical work has been done on them. But it is not of them I am speaking, but of the Atomic Bomb.

There are two sides to our problem, though they are related. One side is the technical and the military: questions of what we do to make weapons available, what weapons we make available, how we plan to use them; the other is the side of policy, the conditions under which we might use atomic weapons, their significance in the conduct of war, their significance in international relations. It is clear that these two sides are related; and yet it will be useful, I think, to separate them; for the role of the public is quite different in them.

THE TECHNICAL QUESTIONS

With regard to the first group of questions, the technical ones, technical both for engineers and scientists and for the military people, the public role is probably in the first instance to determine that secrecy and power are not being abused, that the right questions are being asked and that reasonably honest men are trying to answer them. There is a lot of hard work to do, much of which has not been completely done at the moment. There is, as the commission has made clear, an increase in the scale on which the explosives are to be manufactured. That will not be a trivial undertaking; for there is not only a problem of a balance of the various ways of making explosives, but of a balance between them and other military efforts, a necessarily tight balance in a period of mobilization. The use of electric power

and the use of other scarce materials are examples.

There is an obvious need for the development of weapons systems, so that one can use atomic bombs in a variety of ways, so that one can deliver them in more than one way, and so that one can make them for a variety of targets and uses and situations. There is need for operational planning, so that one may be prepared to anticipate under what conditions they are good weapons, and a good use of explosive, and under what conditions they are not; and there is need for serious work on such countermeasures as exist. There are no special countermeasures against atomic weapons; but if we can intercept carriers, we can hope to intercept carriers of atomic bombs.

These are all major problems. They are not substantially different from those which are met in all other branches of the mobilization program. There is a bit of novelty; and there is one important difference: there is a very great lack of military experience. It is doubtful whether the military experience of the end of the last war is relevant, and, in any case, it applies only to a special form of delivery and a special target, a high altitude delivery of atomic bombs against cities. Nevertheless, I am quite confident that good work on all four of these points is being done, that more and better work will be done, and that, with vigilance and sense, we shall come out with a very considerable increase in military capability.

QUESTIONS OF POLICY

The other side, the policy side, is the one where the role of the public is rather different and rather deeper. That is, of course, also partly a technical question, because one cannot ask whether to use, or under what conditions to use, or how to regard a weap-

Excerpt from an address given before a meeting of the Association of the Bar of the City of New York on January 11.

on, until the weapon is defined. It is also a technical question, in that normally and properly these decisions are made by the chiefs of staff, by the National Security Council, and by the President, and not by a Gallup Poll. But I think I am right in saying that public opinion on the use of atomic weapons is a most important factor. I have been so assured by many military planners. Even without that assurance, it is obvious, if only because how we use and whether we use atomic weapons in warfare depends a great deal on what else is done. It depends a great deal on whether the public insists upon, supports, or balks at other military or political measures.

The question comes first, of course, in the crude form: Shall we or shall we not use the atomic bomb? I think that before public debate can usefully cope with the question, it is necessary to have a few distinctions. One of them is this: We normally think not of the weapon, but of the specific use which was made of it against Hiroshima and Nagasaki. We think of it as an instrument of strategic bombing, for the destruction of lives and of plants, essentially in cities. It is the decisive, even if perhaps not the final, step in a development that may have started at Guernica, that was characterized by the blitz against London, by the British raids on Hamburg, by our fire raids on Tokyo, and by Hiroshima.

STRATEGIC BOMBING

In so far as the prospect of such use may be a deterrent to the initiation of war, or an inducement to governments to carry out policies which we think are sound, and in our interest, it is a fine thing. But the question arises: What happens if the fighting starts? What sort of an instrument is this in a real war? At a time when so very much of our uncommitted military power is in the form of atomic weapons, it is a question that it is dangerous not to face. It is not a new question. It has been asked before. I have thought that I could do little better than to quote comment on strategic bombing from the hearings¹ held in October of 1949, before the Armed Services Committee of the House, in connection with the so-called B-36 program. In those hearings, there were many debates about whether the B-36 could ever reach its target, and many debates about whether, if it did, the

bombardier could hit the target. From time to time the argument took on a more general character. Here are some fragments of the testimony of Admiral Ralph A. Ofstie, who is now in a Pacific command, who was at that time a member of the Military Liaison Committee to the Atomic Energy Commission.

Admiral Ofstie first said what he meant by strategic bombing. "There is no official definition of the term 'strategic bombing!' The official military term is 'strategic air warfare,' defined as: Air combat and supporting operations designed to effect, through the systematic application of force to a collective series of vital targets, the progressive destruction and disintegration of the enemy's war-making capacity to a point where he no longer retains the ability or the will to wage war. Vital targets may include key manufacturing systems, sources of raw material, critical material, stockpiles, power systems, transportation systems, communication facilities, concentrations of uncommitted elements of enemy armed forces, key agricultural areas, and other such target systems.

"This is a very broad field," he said. "Indeed, it would seem to be almost all-inclusive except for the active armed forces of an enemy. In fact, however, the major elements of most of those target systems are located where people live and work, in urban and industrial areas. Further to inject realism into the picture, we must view the tools with which it is proposed the job be done, in this instance the heavy bomber of very long range, of modest performance, operating at great altitudes, and preferably at night. These factors dictate area attack as the means of destroying war-making capacity located within those areas. Therefore, whether we speak of the mass bombing of World War II or the proposed atomic blitz of today, which are major tenets of the strategic bombing concept, we are talking of attacks on cities. This is what I mean when I use the colloquial term 'strategic bombing.'"

Then, speaking for himself and

"many senior officers in the Navy," Admiral Ofstie says: "We consider that strategic air warfare, as practiced in the past and as proposed for the future, is militarily unsound and of limited effect, and is morally wrong, and is decidedly harmful to the stability of a postwar world."

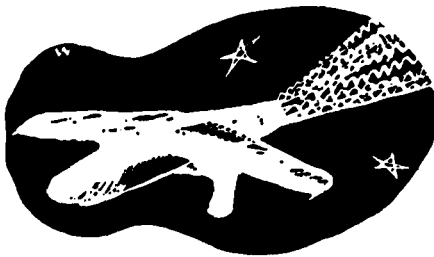
After a technical summary of arguments on the degree of effectiveness, and the technical problems of executing strategic missions, Admiral Ofstie continues: "Much emphasis has been placed upon the instant character of an offensive using atomic bombs. Among laymen this has produced an illusion of power and even a kind of bomb-rattling-jingoism. Although responsible officials of the government generally do not themselves subscribe to it, they must be influenced by the public acceptance of the proposal of instant retaliation. The idea that it is within our power to inflict maximum damage upon the enemy in a short time without serious risk to ourselves creates the delusion that we are stronger than we actually are. This, in turn, becomes a constant temptation for policy-makers to over-commit themselves, to make commitments actually impossible to fulfil."

There is nothing in the public record which indicates that these views had at the time any great effect on military or political thought and planning.

TACTICAL USES

This was all long before the fighting broke out in Korea. Much of what was clear to Admiral Ofstie then has become clear to all of us today. The action in Korea, furthermore, has raised publicly another aspect of the question of the use of atomic weapons in warfare: their use against military targets. The targets commonly discussed are troop concentrations, airfields, naval craft, communications centers. These are among the targets that are an immediate military threat, rather than the basic producing power and the population of an enemy.

I am not qualified, and if I were qualified I would not be allowed, to give a detailed evaluation of the appropriateness of the use of atomic weapons against any or all such targets; but one thing is very clear: It is clear that they can be used only as adjuncts in a military campaign which has some other components, and whose purpose is a military victory. They are not primarily weapons of totality or terror, but weapons used to give combat forces help that they would other-



¹ House Committee on Armed Services, page 183.

wise lack. They are an integral part of military operations. Only when the atomic bomb is recognized as useful in so far as it is an integral part of military operations, will it really be of much help in the fighting of a war, rather than in warning all mankind to avert it.

Just in this connection, of course, it is clear that the mode of use and the time of use have a relation to each other. Today we do not have very much military strength with which to integrate atomic weapons. Two years from now that should be quite different.

The question of whether to use or not to use atomic weapons is a different question, depending on whether or not one has combat forces and is prepared for combat. They are always terrible weapons; they may not be effective weapons if they are all, or almost all, that we have.

THREE WAYS THE ATOM MAY SERVE MILITARY POWER

In fact, one can imagine, in some relation to time, at least three different ways in which the atom may serve as military power. The first and the easiest to imagine is as the principal, if not the only, instrument whose purpose is to destroy plant and kill people: that is the extreme form of the atomic bomb as a strategic weapon.

The second course is the use of atomic bombs primarily against military targets, in tactical use, in coordination with more conventional forms of warfare, in combat. Whether or not they would then be used strategically will depend in part on whether non-use can serve as an effective deterrent; it will depend on the technical advantages, as they appear at the time, of offense and defense. It may not be reasonable to anticipate that the strategic use of atomic weapons will be renounced as was the strategic use of gas warfare, because, in any future we can foresee, the atomic bomb will offer far vaster prospects of destruction. Such renunciation could, I think, result only from a considered policy decision.

There is a third course we can imagine, that we need to imagine: that, with the obvious horror of a general war, through a combination of our efforts and the efforts of others, and through some good fortune, we may manage to find our way to a more secure and more tolerant and more open world without general war. It is as a principal deterrent to such war

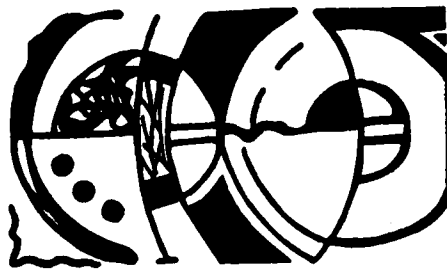
that the military power of atomic weapons may yet be decisive.

I am painfully aware that it is not entirely in our hands to determine which of these three courses does, in fact, take place, or which other course. I am also clear that it is not only or primarily a question of the atom bomb. But it is partly a question for the United States, and partly a public question; and it is partly a question of the atom. For if we misjudge what this weapon can or cannot do, in our hands or in the hands of the enemy, if we misjudge its contribution to military strength, it is clear that we will continue to cause our government, on the basis of our illusions, to follow a

course whose only end must be disaster.

As you know, about a year ago the Prime Minister of India visited this country. He met with many people and talked with them; and shortly before he left the country I asked him whether he had found in his visit here any appreciation, in this quite different culture, of the Hindu notion of control, of restraint. He answered, "Since this, in the last analysis, only rests on a proper evaluation of the consequences of action, I cannot believe that any great people would be without it."

I believe that the American people are a great people.



DR. OPPENHEIMER ON THE RATE OF AMERICAN BOMB PRODUCTION

In his address before the New York Bar Association on January 11, Dr. Oppenheimer commented on the way his testimony before the Senate Committee on Atomic Energy has been misinterpreted as a basis for estimates of the size of the U.S. stockpile:

"For the last two years, I have seen many estimates of how many bombs we have, all allegedly deriving from testimony I gave about five years ago before the Special Senate Committee on Atomic Energy, estimates differing widely with the differing arithmetical practices of the reporter. Even in this last week I have heard and seen three such estimates.

"Let me quote the relevant excerpts of the testimony. Senator Tydings asked: 'Assuming that ten years from now atomic energy in many countries has been licensed by the government for peacetime manufacture and uses. . . . If it were decided to make military bombs from our peacetime atomic

energy, how long would it take us to complete 200?' I said, 'Maybe a little over a year.' Senator Tydings said, 'How long would it take us to make 50?' And I said, 'Maybe a year.' And then I said, 'I think a year is too long; maybe nine months.'

"It is clear that these estimates concern the rate of conversion of fissionable material into weapons, whereas the pacing factor in the making of atomic weapons has for us been the making of fissionable material. Nevertheless, this testimony has been quoted and requoted as an estimate of our weapons stockpiles; perhaps unchallenged—certainly not adequately challenged—for many years."